

## SEQUENCE LISTING

<110> Hohn, T.  
 Salmeron, J.  
 Peters, C.  
 Kendra, D.  
 Reinders, J.  
 Kuznia, R.  
 Dill-Mackey, R.

<120> Transgenic Plant and Methods

<130> sequencelist

<140>  
<141>

<160> 11

<170> PatentIn Ver. 2.0

<210> 1  
<211> 1403  
<212> DNA  
<213> Fusarium sporotrichioides

<400> 1  
atcaaatagg ccgcaacaag cagcacaagg agccagtctt ttgacataga gctcgacatc 60  
atcgccgcgc aaccgcctct tctttcaatc tacacccaga tcagtctcggt ttaccccgtc 120  
tctgatccct cccagttatcc caccatcgctc agcacccctt aggaaggcct aaaacgcctc 180  
tctcaaaccct tccccatgggt cgccggcccg gtcagacccg aggcatcgag cgaaggaaac 240  
acaggaaacctt ccaagatcat tccatatggag gagacacccc gtcttggtt gaaagacetc 300  
cgtatgatt cctcagcgcc aacgatcgag gggttggagaa aggccgggtt ccccttagag 360  
atgtttgacg agaacgtcg ctgcgtccggg aagacattag ctatcgacc tggcaatggc 420  
cccaacgacc cgaaggctgt gttgttattt cagctcaact tcattaaggcg cgactcatt 480  
ctcaccgtca acggacaaca tgggtgtatg gacatgacag gacaagatgc aattattcg 540  
cttctctcca aaggcgtgccg caacgaatca ttccatcgagg agggaaatctc ggcattgaac 600  
ctcgatcgca agacggtagt ccctctcctt gaaaactaca aagttgtcc tgagcttagac 660  
caccatcgcc cccaaacctgc gcctgtggc gacgttccac ccgcaccggc caaggcaacg 720  
tgggcgttct ttccatttcac tcccaaggcc ctctcgaggc tgaaagacgc agccacaaag 780  
actcttgacg cgtcgccaa gtttggatca actgtatgtt ctctttcgcc gtttatctgg 840  
caatcaaccc tccgcgtacg ttcgtccaga ttggatgtt ccacactac tgaattctgc 900  
cgcgtgtcg acatgcgggg cccaatgggc gtatcaagca cataccagg ccttctcaa 960  
aacatgaccc accatgactc gaccgtcgcc gaaatcgcca acgaaccact tggcgcaaca 1020  
gcatacgtcc tgcgtcgaa actcaacagt gatcggttgc gcagacgaaac acaagcttg 1080  
gcgacgtaca tgcgtccaa gcctgacaag tcgagcgctc ccctgaccgc cgatgcgaat 1140  
ccgtcaagca gcatcatgtc gagtttctgg gccaagggtgg gatgttgggat gtatgacttt 1200  
gggtttggac tggtaagcc tgagagtgtg agaagacctc gtttgaacc ttttgagagt 1260  
ttgtatgtact ttatgccccaa gaagcttgc gggagttt cggcgccat ttctctgagg 1320  
gatgaggata tggagagact aaaggcggat gaggagtggc caaaagtacgc aaagtatatt 1380  
ggtagatagat ttactagac tac 1403

<210> 2  
<211> 459  
<212> PRT  
<213> Fusarium sporotrichioides

<400> 2  
Met Ala Ala Thr Ser Ser Thr Ser Ser Gln Ser Phe Asp Ile Glu Leu  
1 5 10 15

Asp Ile Ile Gly Gln Gln Pro Pro Leu Leu Ser Ile Tyr Thr Gln Ile

20	25	30
Ser Leu Val Tyr Pro Val Ser Asp Pro Ser Gln Tyr Pro Thr Ile Val		
35	40	45
Ser Thr Leu Glu Glu Gly Leu Lys Arg Leu Ser Gln Thr Phe Pro Trp		
50	55	60
Val Ala Gly Gln Val Lys Thr Glu Gly Ile Ser Glu Gly Asn Thr Gly		
65	70	75
Thr Ser Lys Ile Ile Pro Tyr Glu Glu Thr Pro Arg Leu Val Val Lys		
85	90	95
Asp Leu Arg Asp Asp Ser Ser Ala Pro Thr Ile Glu Gly Leu Arg Lys		
100	105	110
Ala Gly Phe Pro Leu Glu Met Phe Asp Glu Asn Val Val Ala Pro Arg		
115	120	125
Lys Thr Leu Ala Ile Gly Pro Gly Asn Gly Pro Asn Asp Pro Lys Pro		
130	135	140
Val Leu Leu Leu Gln Leu Asn Phe Ile Lys Gly Gly Leu Ile Leu Thr		
145	150	155
Val Asn Gly Gln His Gly Ala Met Asp Met Thr Gly Gln Asp Ala Ile		
165	170	175
Ile Arg Leu Leu Ser Lys Ala Cys Arg Asn Glu Ser Phe Thr Glu Glu		
180	185	190
Glu Ile Ser Ala Met Asn Leu Asp Arg Lys Thr Val Val Pro Leu Leu		
195	200	205
Glu Asn Tyr Lys Val Gly Pro Glu Leu Asp His Gln Ile Ala Lys Pro		
210	215	220
Ala Pro Ala Gly Asp Ala Pro Pro Ala Pro Ala Lys Ala Ser Trp Ala		
225	230	235
Phe Phe Ser Phe Thr Pro Lys Ala Leu Ser Glu Leu Lys Asp Ala Ala		
245	250	255
Thr Lys Thr Leu Asp Ala Ser Ser Lys Phe Val Ser Thr Asp Asp Ala		
260	265	270
Leu Ser Ala Phe Ile Trp Gln Ser Thr Ser Arg Val Arg Leu Ala Arg		
275	280	285
Leu Asp Ala Ser Thr Pro Thr Glu Phe Cys Arg Ala Val Asp Met Arg		
290	295	300
Gly Pro Met Gly Val Ser Ser Thr Tyr Pro Gly Leu Leu Gln Asn Met		
305	310	315
Thr Tyr His Asp Ser Thr Val Ala Glu Ile Ala Asn Glu Pro Leu Gly		
325	330	335
Ala Thr Ala Ser Arg Leu Arg Ser Glu Leu Asn Ser Asp Arg Leu Arg		
340	345	350

Case S-30884D

Arg Arg Thr Gln Ala Leu Ala Thr Tyr Met His Gly Leu Pro Asp Lys  
355 360 365

Ser Ser Val Ser Leu Thr Ala Asp Ala Asn Pro Ser Ser Ser Ile Met  
370 375 380

Leu Ser Ser Trp Ala Lys Val Gly Cys Trp Glu Tyr Asp Phe Gly Phe  
385 390 395 400

Gly Leu Gly Lys Pro Glu Ser Val Arg Arg Pro Arg Phe Glu Pro Phe  
405 410 415

Glu Ser Leu Met Tyr Phe Met Pro Lys Lys Pro Asp Gly Glu Phe Thr  
420 425 430

Ala Ser Ile Ser Leu Arg Asp Glu Asp Met Glu Arg Leu Lys Ala Asp  
435 440 445

Glu Glu Trp Thr Lys Tyr Ala Lys Tyr Ile Gly  
450 455

<210> 3

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA Primer

<400> 3

acgaatcatt caccgaggag

20

<210> 4

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA Primer

<400> 4

ctcacactct caggcttacc

20

<210> 5

<211> 1356

<212> DNA

<213> Fusarium graminearum

<400> 5

atggcttca agatacagct cgacaccctc ggccagctac caggcctcct ttcatgttac 60  
acccaaatca gtctcctcta cccccgtctt gatttcctctc aatatccac tatttgtcgc 120  
acttcgagc aaggctttaa gcgcctctcc gaagccgtcc catgggtcgc aggccaggc 180  
aaagccgagg gcatttagcga gggaaacaca ggaacttcct ttatcgccc ttttgaggac 240  
gttccctcggt ttgttagtcaa agacccctcgat gatgtatccctt cagcgccac gatcgagggt 300  
atgagaaagg cgggataccct tatggcgatg ttgtacgaga acatcatcgac gccaaggaag 360  
acgttaccta ttggacctgg tactgttccc gacgaccctaa agcctgtataat tctattgcag 420  
ctcaacttca tcaagggcgg actcatcctc actgtcaacg gacagcacgg tgctatggat 480  
atggtaggcc aagatgcggt gatccgtcta ctctccaagg cgtgccgtaa cgaccatc 540  
accgaagagg aaatgacggc catgaacctc gatcgcaaga cgatagtcc ttaccttgaa 600  
aactatacga ttggcccccga ggttagatcat cagattgtca aagctgtatgt agctgggtgtt 660  
gacgctgttc tcacgcccgtt cagtgcacgc tggcggttct tcacattcag ccccaaggcc 720

atgtcagagc tcaaggatgc tgctaccaag actcttgacg catcaacaaa gttcgtgtcg 780  
 actgacgatg ctcttcggc gttcatctgg aaatcgccct ctcgcgtgcg tctcgaaaga 840  
 atcgatggct ctgcacccac cgagttctgc cgtgctgtt atgctcgacc ggcaatgggt 900  
 gtctcgaaaca actacccagg ccttctcaa aacatgaccc accacaactc gaccatcgcc 960  
 gaaatcgcca acgagtcaact cggcgcaaca gcatcacgcc ttcggttcaaa actcgacccc 1020  
 gcgagcatgc gccagcgaa aagaggcttc gcgacgtacc tgacacaacaa ccccgacaag 1080  
 tccaaacgtat ccctgacggc tgatcgacccatctacca gcgtcatgtt gagttcttgg 1140  
 gccaagggtgg gactctggga ttacgacttt ggctcgaccc tggtaagcc cgagactgtg 1200  
 agacggccaa tcttgagcc tggtagact ttatgccaa gaaggctgtat 1260  
 ggcgagttct gtgcggcgtt ttctctgagg gatgaggata tggaccgatt gaaggcggat 1320  
 aaggagtggaa ccaagtatgc gcagtgatgtt ggttag 1356

&lt;210&gt; 6

&lt;211&gt; 451

&lt;212&gt; PRT

&lt;213&gt; Fusarium graminearum

&lt;400&gt; 6

Met	Ala	Phe	Lys	Ile	Gln	Leu	Asp	Thr	Leu	Gly	Gln	Leu	Pro	Gly	Leu
1				5					10				15		

Leu	Ser	Ile	Tyr	Thr	Gln	Ile	Ser	Leu	Leu	Tyr	Pro	Val	Ser	Asp	Ser
					20				25				30		

Ser	Gln	Tyr	Pro	Thr	Ile	Val	Ser	Thr	Phe	Glu	Gln	Gly	Leu	Lys	Arg
					35			40				45			

Phe	Ser	Glu	Ala	Val	Pro	Trp	Val	Ala	Gly	Gln	Val	Lys	Ala	Glu	Gly
					50			55				60			

Ile	Ser	Glu	Gly	Asn	Thr	Gly	Thr	Ser	Phe	Ile	Val	Pro	Phe	Glu	Asp
					65			70			75		80		

Val	Pro	Arg	Val	Val	Val	Lys	Asp	Leu	Arg	Asp	Asp	Pro	Ser	Ala	Pro
					85				90				95		

Thr	Ile	Glu	Gly	Met	Arg	Lys	Ala	Gly	Tyr	Pro	Met	Ala	Met	Phe	Asp
						100			105				110		

Glu	Asn	Ile	Ile	Ala	Pro	Arg	Lys	Thr	Leu	Pro	Ile	Gly	Pro	Gly	Thr
					115			120				125			

Gly	Pro	Asp	Asp	Pro	Lys	Pro	Val	Ile	Leu	Leu	Gln	Leu	Asn	Phe	Ile
					130			135				140			

Lys	Gly	Gly	Leu	Ile	Leu	Thr	Val	Asn	Gly	Gln	His	Gly	Ala	Met	Asp
					145			150				155			160

Met	Val	Gly	Gln	Asp	Ala	Val	Ile	Arg	Leu	Leu	Ser	Lys	Ala	Cys	Arg
					165			170				175			

Asn	Asp	Pro	Phe	Thr	Glu	Glu	Met	Thr	Ala	Met	Asn	Leu	Asp	Arg	
					180			185				190			

Lys	Thr	Ile	Val	Pro	Tyr	Leu	Glu	Asn	Tyr	Thr	Ile	Gly	Pro	Glu	Val
					195			200				205			

Asp	His	Gln	Ile	Val	Lys	Ala	Asp	Val	Ala	Gly	Gly	Asp	Ala	Val	Leu
					210			215			220				

Thr	Pro	Val	Ser	Ala	Ser	Trp	Ala	Phe	Phe	Thr	Phe	Ser	Pro	Lys	Ala
					225			230			235				240

Met Ser Glu Leu Lys Asp Ala Ala Thr Lys Thr Leu Asp Ala Ser Thr  
 245 250 255  
 Lys Phe Val Ser Thr Asp Asp Ala Leu Ser Ala Phe Ile Trp Lys Ser  
 260 265 270  
 Ala Ser Arg Val Arg Leu Glu Arg Ile Asp Gly Ser Ala Pro Thr Glu  
 275 280 285  
 Phe Cys Arg Ala Val Asp Ala Arg Pro Ala Met Gly Val Ser Asn Asn  
 290 295 300  
 Tyr Pro Gly Leu Leu Gln Asn Met Thr Tyr His Asn Ser Thr Ile Gly  
 305 310 315 320  
 Glu Ile Ala Asn Glu Ser Leu Gly Ala Thr Ala Ser Arg Leu Arg Ser  
 325 330 335  
 Glu Leu Asp Pro Ala Ser Met Arg Gln Arg Thr Arg Gly Leu Ala Thr  
 340 345 350  
 Tyr Leu His Asn Asn Pro Asp Lys Ser Asn Val Ser Leu Thr Ala Asp  
 355 360 365  
 Ala Asp Pro Ser Thr Ser Val Met Leu Ser Ser Trp Ala Lys Val Gly  
 370 375 380  
 Leu Trp Asp Tyr Asp Phe Gly Leu Gly Leu Gly Lys Pro Glu Thr Val  
 385 390 395 400  
 Arg Arg Pro Ile Phe Glu Pro Val Glu Ser Leu Met Tyr Phe Met Pro  
 405 410 415  
 Lys Lys Pro Asp Gly Glu Phe Cys Ala Ala Leu Ser Leu Arg Asp Glu  
 420 425 430  
 Asp Met Asp Arg Leu Lys Ala Asp Lys Glu Trp Thr Lys Tyr Ala Gln  
 435 440 445  
 Tyr Val Gly  
 450

<210> 7  
 <211> 1425  
 <212> DNA  
 <213> *Saccharomyces cerevisiae*

<400> 7  
 atgttttagag tcaagatcat ctctcagaaa cgtacaaaaaa gtgtacagat gctagaaaaac 60  
 gatcaacttg atattttggg acaacaacct tcgctataca aactatacac tcaaatatgc 120  
 tctatctacc gtgtaccaga tccttctgct catgaccata tcgtaaatac cttacaaga 180  
 ggacttggaaa cattggctaa aaatttccag tggctagcag gaaatgtcgtaaatgaagg 240  
 gctgacgaag gtaacactgg tacctacaga attgtcccgt cagacaaaaat tccacttac 300  
 gtccaaagatc ttccgagaaga tctgtctgcc ccaacaatgg attcgcttga aaaagctgac 360  
 tttccttatct acatgttaga cgaaaaagact ttgcgcctt gcatgactat caatccac 420  
 ggaaacacta taggtatggc cgccaaagagt gggcctgtat ttgcagtta agcaaacttt 480  
 atctccggcg gcctcgcttt aactattgtc gggcagcaca atattatggataaacagga 540  
 cagggaaagta tcatcaactt gctcaataaa tcttgccacc aaaaacccctt ctctgatgaa 600  
 gaactgtca ttggaaatata agataaaaagc aaatcttac ctttgttga tgaaacttgg 660  
 gaacccgaca ccacgctagt tcatgaaata gttggaaacct ctagaaatac aagtggagag 720

gaaaaggaac agtcttggttc ttcaactct acttgggctt atgttgatt ttctgctatc 780  
 tcattgcaga atctgaggat tttggcaatg cagacatgtt cttctggcac aaaatttgc 840  
 tccactgatg atatcgac tgcttcatc tgaaatcag tttctcgagc ccgttatct 900  
 cgacttaaac cagaaacgaa atcaaattt gggcgtgtg tggatgttag aaaacggcta 960  
 ggactccccg aaacgtatcc agggttataa gtcacatga ccttaataac aggttccctg 1020  
 aaaagcttgg atcataaaaag tttggcggtt ctgcacatc agattcgcag gaagctagac 1080  
 cctaaagtct tcgatggc ctataataca tgccacttg ctacgctct tagccatgc 1140  
 ccggacaaga ctaaggtttc tatacctaa ccaattgata ctttatctgg aattatggtc 1200  
 agttcgtggg caaaagtcag cctgtatgac gttgattca atctaggct tggaaagccc 1260  
 aagagtgtac gacggccgac cttcattcc cttgagagcc taatataattt tatgcctaga 1320  
 tcctccagag gtgaaatggt ggttgcctt tgoccttagag ataaagattt ggagtgcctg 1380  
 aatgcggata aagaatggac aaattatgct acacatata gatga 1425

&lt;210&gt; 8

&lt;211&gt; 474

&lt;212&gt; PRT

<213> *Saccharomyces cerevisiae*

&lt;400&gt; 8

Met	Phe	Arg	Val	Lys	Ile	Ile	Ser	Gln	Lys	Arg	Thr	Lys	Ser	Val	Gln
1				5					10				15		

Met	Leu	Glu	Asn	Asp	Gln	Leu	Asp	Ile	Leu	Gly	Gln	Gln	Pro	Ser	Leu
								20	25				30		

Tyr	Lys	Leu	Tyr	Thr	Gln	Ile	Cys	Ser	Ile	Tyr	Arg	Val	Pro	Asp	Pro
								35	40			45			

Ser	Ala	His	Asp	His	Ile	Val	Asn	Thr	Leu	Thr	Arg	Gly	Leu	Glu	Thr
								50	55			60			

Leu	Ala	Lys	Asn	Phe	Gln	Trp	Leu	Ala	Gly	Asn	Val	Val	Asn	Glu	Gly
								65	70		75		80		

Ala	Asp	Glu	Gly	Asn	Thr	Gly	Thr	Tyr	Arg	Ile	Val	Pro	Ser	Asp	Lys
								85	90			95			

Ile	Pro	Leu	Ile	Val	Gln	Asp	Leu	Arg	Glu	Asp	Leu	Ser	Ala	Pro	Thr
								100	105			110			

Met	Asp	Ser	Leu	Glu	Lys	Ala	Asp	Phe	Pro	Ile	Tyr	Met	Leu	Asp	Glu
								115	120			125			

Lys	Thr	Phe	Ala	Pro	Cys	Met	Thr	Ile	Asn	Pro	Pro	Gly	Asn	Thr	Ile
								130	135			140			

Gly	Met	Ala	Ala	Lys	Ser	Gly	Pro	Val	Phe	Ala	Val	Gln	Ala	Asn	Phe
								145	150		155		160		

Ile	Ser	Gly	Gly	Leu	Val	Leu	Thr	Ile	Val	Gly	Gln	His	Asn	Ile	Met
								165	170			175			

Asp	Ile	Thr	Gly	Gln	Glu	Ser	Ile	Ile	Asn	Leu	Leu	Asn	Lys	Ser	Cys
								180	185			190			

His	Gln	Lys	Pro	Phe	Ser	Asp	Glu	Glu	Leu	Leu	Ile	Gly	Asn	Ile	Asp
								195	200		205				

Lys	Ser	Lys	Ser	Ile	Pro	Leu	Phe	Asp	Glu	Thr	Trp	Glu	Pro	Asp	Thr
								210	215		220				

Thr	Leu	Val	His	Glu	Ile	Val	Glu	Thr	Ser	Arg	Asn	Thr	Ser	Gly	Glu

225	230	235	240
Glu Lys Glu Gln Ser Cys Ser Ser Asn Ser Thr Trp Ala Tyr Val Glu			
245	250	255	
Phe Ser Ala Ile Ser Leu Gln Asn Leu Arg Ile Leu Ala Met Gln Thr			
260	265	270	
Cys Thr Ser Gly Thr Lys Phe Val Ser Thr Asp Asp Ile Val Thr Ala			
275	280	285	
Phe Ile Trp Lys Ser Val Ser Arg Ala Arg Leu Ser Arg Leu Lys Pro			
290	295	300	
Glu Thr Lys Ser Asn Leu Gly Arg Ala Val Asp Val Arg Lys Arg Leu			
305	310	315	320
Gly Leu Pro Glu Thr Tyr Pro Gly Leu Leu Val Asn Met Thr Phe Asn			
325	330	335	
Thr Gly Ser Leu Lys Ser Leu Asp His Lys Ser Leu Gly Val Leu Ala			
340	345	350	
Ser Gln Ile Arg Arg Lys Leu Asp Pro Lys Val Phe Asp Leu Ala Tyr			
355	360	365	
Asn Thr Cys Ala Leu Ala Thr Leu Leu Ser Arg Cys Pro Asp Lys Thr			
370	375	380	
Lys Val Ser Ile Pro Gln Pro Ile Asp Thr Leu Ser Gly Ile Met Val			
385	390	395	400
Ser Ser Trp Ala Lys Val Ser Leu Tyr Asp Val Asp Phe Asn Leu Gly			
405	410	415	
Leu Gly Lys Pro Lys Ser Val Arg Arg Pro Arg Phe Ile Ser Leu Glu			
420	425	430	
Ser Leu Ile Tyr Phe Met Pro Arg Ser Ser Arg Gly Glu Met Val Val			
435	440	445	
Ala Leu Cys Leu Arg Asp Lys Asp Trp Glu Cys Leu Asn Ala Asp Lys			
450	455	460	
Glu Trp Thr Asn Tyr Ala Thr His Ile Gly			
465	470		

<210> 9  
<211> 6111  
<212> DNA  
<213> Plasmid

<400> 9  
aagcttgcatt gcctgcgtgc cagcgtgacc cggcggtgcc cctctctaga gataatgagc 60  
attgcattgtc taagttataa aaaattacca catattttt ttgtcacact tgttgaagt 120  
gcaggtttatc tatctttata catatattta aactttactc tacgaataat ataatctata 180  
gtactacaat aatatcgtg ttttagagaa tcataataat gaacagtttg acatggtcta 240  
aaggacaatt gagtttttgc acaacaggac tctcagttt tatctttta gtgtgcgtgt 300  
gttcctccccc tttttgcaa atagcttcac ctatataata cttcatccat tttatttagta 360  
catccattta gggtttaggg ttaatggttt ttatagacta attttttag tacatctatt 420  
ttatctatt ttagcctcta aattaagaaa actaaaactc tatttttagttt ttttattta 480

ataatttaga tataaaaatag aataaaaataa agtgactaaaa aattaaacaa ataccctta 540  
agaaattaaa aaaactaagg aaacatttt ctgtttcga gtagataatg ccagcctgtt 600  
aaacgcgtc gacgagtcta acggacacca accagcgaac cagcagcgtc gcgtcgggcc 660  
aagcgaagca gacggcacgg catctgtc gctgcctctg gaccctctc gagagttccg 720  
ctccaccgtt ggacttgctc cgctgtcggc attcagaaaat tgctggcgg agcggcagac 780  
gtgagccggc acggcaggcg gcctccctt ccttcacgg caccggcagc tacggggat 840  
tccttccca ccgctccccc gcttccctt cctcgccccg cgtataaaaat agacacccccc 900  
tccacaccct cttccccaat cctcgtgtt ttcggagcgc acacacacac aaccagatct 960  
ccccaaatc cacccgtcgg cacccgtc tcaaggtacg ccgctgtcc tccccccccc 1020  
ccccctctca ccttctctag atcggcgttc cggtccatgg ttagggcccg gtagttctac 1080  
ttctgttcat gtttgtgtt gatccgttt tggttagat ccgtgctgt akgttcgta 1140  
cacggatgca acctgtacgt cagacacgtt ctgattgtca acttgcctgt gtttctttt 1200  
ggggaaatctt gggatggctc tagccgttcc qcagacggga tgcattttat gatttttttt 1260  
gtttcgtgc atagggtttt gtttgcctt ttcccttatt tcaatataat ccgtgcactt 1320  
gttttgcggg tcatctttt atgctttt ttgttcttggg tggtatgtat tggctgggtt 1380  
gggcggctg tctagatcggtt agtagaaatc tggttcaaaat tacctgggtgg atttataat 1440  
tttggatctg tatgtgtgtt ccatacatat tcatagttac gaattgaaga tgatggatgg 1500  
aaatatcgat cttaggatagg tatacatgtt gatgcgggtt ttactgtatgc atatacagag 1560  
atgcttttg ttcgcttggg tggtatgtat tggtgtggg gggcggtcgt tcattcgttc 1620  
tagatcgag tagaataactg tttcaacta cctgggtgtat ttattaaattt tggaaactgt 1680  
tgtgtgtgtc atacatcttc atagttacga gttaagatg gatggaaata tcgatctagg 1740  
ataggatatac atgttgcgtt gggtttact gatgcataata catgtggca tatgcagcat 1800  
ctattcatat gctctaacct tgagtaccta tctattataa taaaacaagta tgtttataa 1860  
ttatattgtat cttgatatac ttggatgtat gcatatgcag cagctatatg tggatttttt 1920  
tagccctgcc ttcatacgctt atttatttgc ttggactgtt ttctttgtc gatgctcacc 1980  
ctgttgcggg gtgttacttc tgcaggatc cccgatcatg caaaaactca ttaactcagt 2040  
gcaaaactat gcttggggca gcaaaacggc gtgtactgaa ctttatggta tggaaaatcc 2100  
gtccagccag ccgatggccg agctgtggat gggcgacat ccgaaaagca gttcacgagt 2160  
gcagaatgccc gccggagata tcgttcaact gctgtatgtt attgagatg ataaatcgac 2220  
tctgctcgga gaggccgtt ccaaacgctt tgccgaactg ccttcctgt tcaaagtatt 2280  
atgcgcagca cagccactt ccattcaggat tcatccaaac aaacacaattt ctggaaatcg 2340  
ttttgccaaa gaaaatgccc caggatccc gatggatgcc gccgagcgta actataaaga 2400  
tcctaaccac aagccggagc tgggttttgc gctgacgcct ttcttgcga tgaacgcgtt 2460  
tcgtgaattt tccgagattt tctccctact ccagccggc gcaggtgcac atccggcgt 2520  
tgctcacttt ttacaacagc ctgatgccga acgtttaago gaactgttgc ccagcctgtt 2580  
gaatatgcag ggtgaagaaa aatccgcgc gctggcgatt taaaatcggtt ccctcgatag 2640  
ccagcagggtt gaaccgtggc aaacgatccg ttaattttctt gaattttacc cgaaagacag 2700  
cggtctgttc tccccgtat tgctaatgtt ggtgaatttgc aaccctggcg aagcgatgtt 2760  
cctgtcggtt gaaacaccgc acgttacat gcaaggcgtt ggcgttggaaatg tggccaaa 2820  
ctccgataac gtgtcggtt cgggtctgac gcttaataatc attgatattt ccggaaactgtt 2880  
tgccaatgtt aatttgcgaaat ccaaaccgcg taaccaggat tggaccgcg ccgtgaaaca 2940  
aggtgcagaa ctggacttcc cgttccaggat ggtatgtttt gccttctgc tgcatgacct 3000  
tagtgataaa gaaaccacca ttagccagca gagtgccgc attttgcgtt ggcgtcgaagg 3060  
cgatgcacg ttgtggaaat gttctcagca gtacagctt aaaccgggtt aatcagcggtt 3120  
tattgccc aacgaatcac cggtgactgt caaaggccac ggcgtttag cgctgttta 3180  
caacaagctg taagagctt ctgaaaaat taacatctt tgctaatgtt ggagctctag 3240  
atctgttctg cacaatgtt agtagtcatg catcgatcga gaaccagaca ccagactttt 3300  
attcatacag tgaatgttca tgaatgtcag tgcagtgatgat tgctgggtt tgcataactt 3360  
agtagtgtt tgcataacttca aataacttctt atcaataaaa ttctaaattt ctaaaaccaa 3420  
aatccagtgg gtaccgaattt cactggccgtt cgttttacaa cgtctgtactt gggaaaaccc 3480  
tggcggttacc caacttaatc gccttgcagc acatccccctt ttcgcccacgtt ggcgtaatag 3540  
cgaagaggcc cgcaccgcac gccccttccca acagtgcgc agcctgaatg gcaatggcg 3600  
cctgtcggtt tattttctcc ttacgcacat gtcgggttattt tcacaccgcg tattttgcac 3660  
tctcgttaca atctgttctg atggccatca gttaaaggccat ccccgacacc cgccaaacacc 3720  
cgctgacgcgc ccctgacggg cttgtctgtt cccggcatcc gcttacagac aagctgtgac 3780  
cgctccggg agctgcacgtt gtcagaggat ttcaccgtca tcaccggaaat ggcgcgagacg 3840  
aaaggccctc gtgatacgc tattttata gttaaatgtt atgataataa tgggttctta 3900  
gacgtcaggat ggcacttttcc gggggaaatgtt ggcggaaacc cctattttttt tattttctta 3960  
aatacattca aatatgtatc cgctcatgat acaataaccc tgataaaatgc ttcaatggcg 4020  
cgccgcggcc gcttaagaat attgaaaaatg gaagagttatg agtattcaac attccgtgt 4080  
cgcccttattt cccttttttgc cggcatttttgc cttcctgtt tttgctcacc cagaaacgc 4140  
ggtaaaatgtt aagatgttca aagatcaggat ggggttacatc gtcgacttgc 4200

tctcaacagc	ggtaagatcc	ttgagagttt	tcgccccgaa	gaacgttttc	caatgtgag	4260
cactttaaa	gttctgctat	gtggcgcggt	attatcccgt	attgacgccc	ggcaagagca	4320
actcggtcgc	cgcatacact	attctcagaa	tgacttgggt	gagtactcac	cagtcacaga	4380
aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgtctgcca	taaccatgag	4440
tgataaacact	gcggccaact	tacttctgac	aacgatcgga	ggaccgaaagg	agctaaccgc	4500
tttttgac	aacatggggg	atcatgtAAC	tcgccttgat	cgttgggaaac	cggagctgaa	4560
tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	caacaacggt	4620
gcgcaaacta	ttaactggcg	aactactac	tctagttcc	ccggcaacaat	taatagactg	4680
gatggaggcg	gataaagtgg	caggaccat	tctgcgtcg	gcccttccgg	ctggctgggt	4740
tattgtctgt	aaatctggag	ccgggtgagcg	tgggtctcg	ggtatcattt	cageactggg	4800
gccagatgtt	aaggccccc	gtatcgtagt	tatctacacg	acggggagtc	aggcaactat	4860
ggatggaaacg	aataagacaga	tcgctgagat	agggtgctca	ctgattaagc	atttgttaact	4920
gtcagaccaa	gtttactcat	ataacttta	gattgatttA	aaacttcatt	tttaatttAA	4980
aaggatctag	gtgaagatcc	ttttgataa	tctcatgacc	aaaatccctt	aacgtgagtt	5040
ttcgttccac	tgagcgtcag	accccgtaga	aaagatcaaa	ggatcttctt	gagatccctt	5100
tttctgcgc	gtaatctgct	gcttgcAAAC	aaaaaaacc	ccgcttaccag	cggtggtttg	5160
tttgcggat	caagagctac	caactcttt	tccgaaggta	actggcttca	gcagagcgca	5220
gataccaaat	actgtccttc	tagtgtagcc	gtagttaggc	caccacttca	agaactctgt	5280
agcaccgcct	acataacctcg	ctctgtcaat	cctgttacca	gtggctgctg	ccagtggcga	5340
taagtctgt	cttacccgggt	tggactcaag	acgatagttA	ccggataagg	cgcagcggtc	5400
gggctgaacg	gggggttcgt	gcacacagcc	cagcttggag	cgaacgacct	acaccgaact	5460
gagataccta	cagcgtgagc	tatgagaaag	cgccacgctt	cccgaaaggga	gaaaggcgga	5520
caggatattcg	gtaaagcggca	gggtcggaac	aggagagcg	acgaggggagc	ttccaggggg	5580
aaacgccttg	tatctttata	gtcctgtcg	gtttcgccac	ctctgacttg	agcgtcgatt	5640
tttctgtatgc	tcgtcagggg	ggcggagct	atggaaaaac	gccagcaacg	ccgcctttt	5700
acggtttcgt	gccttttgt	ggccctttgc	tcacatgttc	tttctctgcgt	tatccccctgt	5760
ttctgtgtat	aaccgttata	ccgcctttga	gtgagctgtat	accgctcgcc	gcagccgaac	5820
gaccgagcgc	agcgagtcag	tgagcgagga	agcggaaagag	cttaagcggc	cgcggcgcgc	5880
cggccaaatac	gcaaaaccgcc	tctccccgct	cgttggccga	ttcattaatg	cagctggcac	5940
gacagggttc	ccgactggaa	agcggggca	gagcgtcaacg	caattaatgt	gagttagctc	6000
actcattagg	caccccccaggc	tttacactt	atgctccgg	ctcgatgtt	gtgtggaaatt	6060
gtgagcggat	aacaatttca	cacagggaaac	agctatgacc	atgattacgc	c	6111

<210> 10  
<211> 13737  
<212> DNA  
<213> Plasmid

<220>  
<223> Description of Artificial Sequence:Plasmid

```

<400> 10
gatccagaat tcgtgatcaa atggccgcaa caagcagcac aagcagccag tcttttgaca 60
tagagctgaa catcatcgcc cagcaaccgc ctcttcttc aatctacacc cagatcagtc 120
tcgtttaccc cgtctctgat ccctcccagt atcccaccat cgtcagcacc cttgaggaaag 180
gcctaaaacg cctctctcaa accttcccat gggtcgggg ccaggtcaag accgaggcga 240
tcagcgaagg aaacacagga acttccaaga tcattccata tgaggagaca ccccgcttgg 300
tggtaaaga cctcgtgtat gattcctcag cgccaaacgat cgaggggttgg agaaaggcgg 360
gtttccccctt agatgtttt gacgagaacg tcgtcttcgat gaggaaagaca ttatctatcg 420
gacctggcaa tggccccaac gacccgaacg ctgttgtgc attgcagctc aacttcattaa 480
agggcggact catttcaccat gtcaacggac aacatggatc tatggacatcg acaggacaag 540
atgcaattat tcgttcttc tccaaggcgt gccgcaacgat atcattcacc gaggaggaaa 600
tctcgccat gaacctcgat cgcaagacgg tagtccctctt ccttggaaaac tacaatgtt 660
gtcctgagct agaccaccatc atcgccaaac ctgcgcctgc tggcgacgct ccaccggcac 720
cgcccaaggc aagctggcg ttctttcat tcactccaa ggcctctcg gagctgaaag 780
acgcagccac aaagacttgc gacgcgtcgtt ccaagttgt gtcaactgtat gatgtctttt 840
cgccgtttat ctggcaatca acctcgcgcg tacgtctcgat aagattggat gcttccacac 900
ctactgaatt ctgcgcgcgt gtgcacatgc gggggccaaat ggccgtatca agcacatacc 960
caggccttct tcaaaacatcg accttccatcg actgcacgcgtt cgccgaaatc gccaacaaac 1020
caactggcgc aacagcatca cgcctgcgtt cggaaactcaa cagtgtatcg ttgcgcagac 1080
gaacacaacg tttggcgcacg tacatgcatg gcctgcgttca caagtcgagc gtctccctga 1140
ccqccqatgc qaattccgtca aqcaqcatca tqctgagttc ctggggccaaatc gtgggatgtct 1200

```

gggagtatga ctttgggttt ggactggta agcctgagag tgcgttgcata cctcgcttt 1260  
 aaccccccga gagtttgatg tactttatgc ccaagaagcc tgatggggag ttacggcg 1320  
 ccattttctt gaggatggat gatatggaga gactaaaggg gcatggggatggatccaaatg 1380  
 acgaaaatgtatggtag atagttact agactactgc agggatatcg tggatcccc 1440  
 gaattcccc gatcgtaaa acattggca ataaagtttca ttaagattga atctgttgc 1500  
 cggtcttcgatgatattatca tctaatttctt gtgttattac gttaaatcg taataattaa 1560  
 catgtatgc atgacgttat ttatgagatg gttttttatg attagatgtcc cgcaattata 1620  
 catttaatac gcgatagaaaa acaaataata ggcgcacaac taggataaat tatcgccgc 1680  
 ggtgtcatct atgttactatccggaaat tcggcgcgc caattgattt aaatggccgc 1740  
 tgcggccaaat tccgtcagcg ttgcgttctt gtcagttcca aacgtaaaac ggcttgtccc 1800  
 gcgtcatcgccgggggtcat aacgtgactc ccttaatttctt ccgtctatgatc tcaatgttc 1860  
 gttttcccgcc ttcaatgtttaa actatcgatg tttgacagga tatattggcg gttaaaccta 1920  
 agagaaaaaga qcgatgttataa gaataatcgat atattttaaa gggcgtaaaatggatcc 1980  
 gttcgccat ttgtatgtgc atgccaacca cagggttccc cagatcttgc gcccggcc 2040  
 gagacgagatggccg ccgcccggaaat cgtccgaca ggcgcggcc cacaggtgcg 2100  
 caggcaaaattt gcaacaaacgc atacagcgcc agcagaatgc catagtgggc ggtgacgtcg 2160  
 ttcgagtgaa ccagatcgcc caggaggccc ggcagcaccg gcataatcg gccgatgcgc 2220  
 acagcgatcgatcgccgatcgactt acatcgatggggatggatcc gcttacttgcg 2280  
 ggcctccgga ccagcctcgatggccatgat tgaacgcgcg gatttttat cactgataag 2340  
 ttgggtggaca tattatgtttt atcgtgata aagtgtcaag catgacaaatg ttgcagccga 2400  
 atacagtgtatccgtgttccatggacatgtt gtaacgaggtt cggcgtagac ggtctgacga 2460  
 cacgcaaaactt ggcggaaacggg ttgggggttc agcagccggc gcttacttgcg 2520  
 acaagcgggc gctgtcgac gcaatggccg aagccatgtt ggcggagaat catacgatt 2580  
 cgggtccgag agccgacgac gactggcgat cattttctgtat cgggaatgcg cgcagcttca 2640  
 ggcaggcgct gtcgccttac cgcgatggcg cgcgcattca tgccggcacg cgaccggcg 2700  
 caccggatgatggaaacggcc gacgcgcagc ttgcgttccatcgatggcg ggttttcgg 2760  
 cggggacgcg cgtcaatcgatcgatgatcataatcgatcc tcaatgttgcg 2820  
 aggagcaggccg cggcgacagc gatgcggcg agcgcggccg caccgttgcg 2880  
 tctcgccgctt gttcgccggcc gcgatagacg ctttcgacga agccgttccg gacgcagcgt 2940  
 tcgagcaggg acttcgcccgtt attgtcgatg gattggcgaa aaggaggctt gttgtcagga 3000  
 acgttgaagg acccgagaaatg ggtgacgattt gatcaggacc gtcgcggag cgcaacccac 3060  
 tcactacagc agagccatgtt agacaacatc cctcccccctt ttccaccgcg tcaacgcgc 3120  
 gtagcagcccc gtcacgggtt ttttcatgcc ctggcccttagt gtcacggctt caccggccg 3180  
 ctcggccctt ctggccggctt tctggcgctt tttccgttccatcgacttactgcgtcg 3240  
 ctcgtcgatggccgatcgatcactca aaggcggttacgatggatcc 3300  
 cacagaatca ggggataaactg caggaaagaaatgatgtgacca aaggccgcgaaaaggcc 3360  
 gaaccgtaaaatg aaggccgcgtt tgctggcgat tttccataggatccggcccccctgacgagca 3420  
 tcacaaaaat cgaatcgatcaatcgatggatccatggatccatggatccatggatccatggatcc 3480  
 ggcgttccctt cctggaaatcgatccatggatccatggatccatggatccatggatccatggatcc 3540  
 atacctgtcc gctttctccatggatccatggatccatggatccatggatccatggatccatggatcc 3600  
 tcggggatcgat ttttcggat tttccatccatggatccatggatccatggatccatggatccatggatcc 3660  
 tttggccaaatg gttcgatgtt gactttccatggatccatggatccatggatccatggatccatggatcc 3720  
 taggtgaatgtt gggccacccatggatccatggatccatggatccatggatccatggatccatggatcc 3780  
 tggccgtatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 3840  
 atgagggccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 3900  
 aggtgtactcgatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 3960  
 tgacgttcgtccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4020  
 actatgatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4080  
 tgctgtatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4140  
 tcgcctcgatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4200  
 tggccctcgatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4260  
 gtgatgttccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4320  
 aagtacatca ccgacgagatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4380  
 tggccctcgatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4440  
 gaaggccgtgtt gcgagacaccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4500  
 tggccctcgatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4560  
 cggcgatcgatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4620  
 cgcaatcgatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4680  
 tggggataatcgatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4740  
 cgcgttcgtccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4800  
 ttggggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4860  
 gcccacccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatccatggatcc 4920

accaggggctg cgccctgtgc gcgtgaccgc gcaacgccaa ggggggtgcc ccccccttc 4980  
 gaaccctccc ggcccgtcaa cgccggcctc ccatttttttcc aggggctgcg cccctcgcc 5040  
 gcgaaacggcc tcaccccaa aatggcagcg ctggcagtcc ttgcattgc cgggatcg 5100  
 gcagtaacgg gatgggcgt cagcccgacg ggcacgcccga gaagcatgaa cgtccgcag 5160  
 gtgtggcat cgacattcag cgaccaggta cccggcagtgc agggcggcg cctgggtggc 5220  
 ggcctccct tcacttcggc cgtcgggca ttacggact tcatggcggg gccggcaatt 5280  
 tttaccttgg gcattttggc catagtggc gcgggtgcg tgctcggtt cgggggtgcg 5340  
 ataaaacccag cgaaccattt gaggtatag gtaagattat accgaggtat gaaaacgaga 5400  
 attggacctt tacagaatta ctctatgaa cgcctatattt aaaaacttac caagacgaa 5460  
 aggatgaaga ggtgaggag gcagattgcc ttgaatataat tgacaataact gataagataa 5520  
 tatactttt atatagaaga tatcgccgt tgaaggatt tcaggggca aggcataggc 5580  
 agcgcgctt tcaatataatc tatagaatgg gcaaagcata aaaacttgcg tggactaatg 5640  
 cttgaaaccc aggacaataa ccttatagct tgtaaattct atcataattt ggtatgact 5700  
 ccaacttatt gatgtgtt tatgtcaga taatgcccga tgactttgtc atgcagctcc 5760  
 accgattttt agaacgcacg cgacttccgt ccacggcgtg ccaggtgtc cctcagattc 5820  
 aggttatgcc gctcaattcg ctgcgtat cgttgcgtt ttacgtcgac ctttccctc 5880  
 aggccggatt catacagcgg ccagccatcc gtcattccata tcaccacgtc aaagggtgac 5940  
 agcaggctca taagacgccc cagcgtcgcc atagtgcgtt caccgaatac gtgcgcaaca 6000  
 accgtttcc ggagactgtc atacgcgtaa aacagccacg gctggcgca tttagcccg 6060  
 acatagcccc actgttcgtc cattttccgcg cagacgatga cgtcaactgc cggctgtatg 6120  
 cgcgagggtt ccgactgcgg cctgagttt ttaagtgcgc taaaatcgta ttgaggccaa 6180  
 cgcgcataat gcggtgtt gcccgcata caacgcatt catggccata tcaatgattt 6240  
 tctggtgcgt accgggttga gaagcgggtg aagtgaactg cagttgcatt gttttacggc 6300  
 agtgagagca gagatagcgc tgatgtccgg cgtgtctttt gccgttaacg accaccccg 6360  
 cagtagctga acaggaggaa cagctgatag acacagaagc cactggagca cctcaaaaac 6420  
 accatcatac actaaatcga taagtggca gcatcaccca taattgtgtt ttcaaaatcg 6480  
 gtcctgcgt tactatgtt tacgcactt ttgaaaacaa ctttggaaaaa gctgtttct 6540  
 ggtatttaag gttttagaat gcaaggaaaca gtaatttggg gttcgctttt ttataattag 6600  
 cttctgggg tatcttaaa tactgttagaa aagaggaaagg aaaaataaaa ttgctaaaat 6660  
 gagaatatca cccgaatttga aaaaactgtat cggaaaatac cgctgcgtaa aagatacgga 6720  
 aggaatgtct cctgctaagg tatataagct ggtgggagaa aatggaaaacc tatatttaaa 6780  
 aatgacggac agccggataa aagggaccac ctatgtatgc gAACGGAAA aggacatgt 6840  
 gctatggctg gaaggaaagc tgcctttcc aaaggcctcg cacttgcac ggcacatgg 6900  
 ctggagcaat ctgctcatga gtgaggccga tggcgtcctt tgctcggaa agtgcgaa 6960  
 tgaacaaagc cctgaaaaga ttatcgagct gtatgcggag tgcatcaggc tcttcactc 7020  
 catcgacata tcggattgtc cctatacgaa tagcttagac agccgcttag ccgaatttgg 7080  
 ttacttactg aataacgcgt tggccgtat ggatttgcgaa aactggggaa aagacactcc 7140  
 atttaaagat ccgcgcgacg tgtatgtt tttaaagacg gaaaaggccg aagaggaaact 7200  
 tgtctttcc caaggcgacc tggagacag caacatctt gtggaaatgt gcaaaatgt 7260  
 tggctttatt gatcttgggaa gaagcggcg ggcggacaag ttgtatgaca ttgcctctg 7320  
 cgtccggctg atcaggaggaa atatcgggaa agaacagttat gtcgagctat ttttgactt 7380  
 actggggatc aagctgtattt gggagaaaat aaaatattt attttactgg atgaattgtt 7440  
 tttagtaccta gatgtggcgc aacgtatgcg ggcacaaagca ggagcgcacc gacttcttc 7500  
 gcatcaagtgtt ttttggctctt caggccgagg cccacggcaat gtatggggc aagggtgcg 7560  
 tggtattcgt gcagggaatata ccaagttacga gaaggacggc cagacggct 7620  
 acgggaccga cttcatttgc gataagggtt attatctggg cacaaggca ccaggcggt 7680  
 caaatcagga ataaggggcac attggcccg cgtgagtcgg ggcacatcccg caaggagggt 7740  
 gaatgaatcg gacgtttgcg cggaaaggat acaggcagaact actgtatgcg ggggggtttt 7800  
 ccgcggagga tggccggaaacc atcgcaaggc gcaacgtcat gctgcgcggcc cgccaaaccc 7860  
 tccagttcgatg cggctcgatg gtccagcaag ctacggccaa gatcgagcgc gacacgtgc 7920  
 aactggctcc ccctgcctt cccgcgcatt cggccgcgtt ggagcgttcg cgtcgtctcg 7980  
 aacaggaggc ggcagggtttt gcaagttcgatg tgaccatcgat cacgcgaggaa actatgcga 8040  
 ccaagaagcg aaaaacccgcg ggcaggaggacc tggcaaaaca ggtcagcggag gccaaggcagg 8100  
 ccgcgttgct gaaacacacg aagcagcaga tcaaggaaat gcaatgttcc ttgttcgata 8160  
 ttgcggctg gccggacacg atgcgagcga tgccaaacga caccggccgc tctgcccctgt 8220  
 tcaccacgcg caacaagaaa atcccgccgcg aggctgcgtca aaacaaggtc atttccacg 8280  
 tcaacaagga cgtgaagatc acctacaccg gctgcgtatc gcccggccgac gatgcacgaa 8340  
 tggtgtggca gcaagggtttt gatgtacgcgaa agcgcacccca tattcggcgag ccgatcacct 8400  
 tcacgttctca cggatcttgc caggacctgg gctggctgtat caatggccggg tattacacga 8460  
 aggccggatc atgcctgtcg cgcctacagg cgacggcgat gggcttacg tccgaccggcg 8520  
 ttggccacctt ggaatcggtt ctcgtctgc accgcgttccg cgtcctggac cgtggcaaga 8580  
 aaacgtcccc ttgcggatc cttatcgatc agggaaatcgat cgtgtttt gctggcgacc 8640

actacacgaa attcatatgg gagaagtacc gcaagctgtc gccgacggcc cgacggatgt 8700  
 tcgactattt cagctcgac cgggagccgt acccgctcaa gctggaaacc ttccgcctca 8760  
 tgtcgccatc ggattccacc cgcgtgaaga agtggcgca gcaggtcgcc gaagcctcg 8820  
 aagagttgcg aggccggc ctggcttggaa acggctgggt caatgtac ctgtgcatt 8880  
 gcaaaacgta gggccttggg gggtcagttc cggtggggg ttcagcagcc agcgctttac 8940  
 tggcatttca ggaacaagcg ggcactgctc gacgcacttg cttcgcctc tattcgctcg 9000  
 gacgcacggc gcgctctacg aactgccat aacagaggaa taaaattga caattgtat 9060  
 taaggcttag attcgacggc ttggagccgc cgacgtgcag gattcccg agatccgatt 9120  
 gtccggccctg aagaaagctc cagagatgtt cgggtccgtt tacgagcacg aggagaaaa 9180  
 gcccattggag gcggtcgctg aacgggtcg agatggcgatg gcattcgcc cctacatcg 9240  
 cgccgagatc attgggtcgatg cggtcttcaa acaggaggac ggccccaaagg acgctcacaa 9300  
 ggcgcacatcg tccggcggtt tcgtggagcc cgaacagcga ggccgagggg tcggccgtat 9360  
 gctgtcgccg gcggtcgccgg cgggtttattt gtcgtgtatg atcgccgac agattccaac 9420  
 gggaatctgg tggatgcgtc ttttcatctt cggcgactt aatatttcg tattctggag 9480  
 ctttgttattt atttcgggtt accgcgttccggcggccggcggccgg taggcgtgt 9540  
 gcagccgtcg atggcgatg tcatctctgc cgctgtctca ggtagcccgatc tacgattgtat 9600  
 ggcggccctg ggggttattt gcggaactgc gggcggtggcgttgggttg tgacacccaa 9660  
 cgccagcgcta gatccgtcg cggtcgccggcggccgttggcggccgtt ccattggcg 9720  
 cggaaccgtg ctgaccggca agtggcaacc tcccggtcct ctgctcacat ttaccgcctg 9780  
 gcaactggcg gccggaggac ttctgctcg tccagtagct ttagtggatc atccgcaat 9840  
 cccgatgcct acaggaacca atgttctgg cctggcggtt ctcggccgtga tcggagccgg 9900  
 tttaacctac ttcctttgggat tccggggat ctcggactc gaacctacag ttgtttccctt 9960  
 actgggtttt ctacggccca gatctgggtt cgtacggccg gggatgcac agggccgacag 10020  
 tcggaacttc ggggtccccca cctgtaccat tcggtgagca atggataggg gattgtat 10080  
 cgtcaacgtt cacttctaaa gaaatagcgcc cactcagctt ctcagccggc ttatccagc 10140  
 gatttcttat tatgtcgccg tagttctcaa gatcgacagc ctgtcaggtt taagcgagaa 10200  
 atgaataaga agggtatataa ttccgtatctc tggcgaggag atgatattt atcacaggca 10260  
 gcaacgtct gtcatcgat caatcaacat gtcacccctcc gcgagatcat ccgtgtttca 10320  
 aacccggcag cttagttggc gttctccga atagcatcgg taacatcgatc aaagtctgccc 10380  
 gccttacaac ggctctcccg ctgacggccgtt cccggactga tgggctgcct gtatcgagtg 10440  
 gtqattttgt gcccggactgc cggtcgccggat gctgttggctt ggttggggcaggatattt 10500  
 gtgggtgtaaa caaattgacg cttagacaac ttaataacac attgcggacg tttttatgt 10560  
 actgcgggtac ggcgttccggc gccggccggg caccggtaaa tttctcgatc ggctagcgaa 10620  
 ttcgagctcg gtacccctggg atttttgtt taggaattttag attattgtata gaagtatttt 10680  
 acaaatacaa atacataacta agggtttctt atatgtcaaa cacatcgacgaa aaccctata 10740  
 agaaccctaa ttcccttatac tgggaactac tcaacattttt ttagatagag agatagattt 10800  
 gttagagagag actgggtgtt tcagccggca tgcctgcagg tgcactcaga tctgggttac 10860  
 tggcctaactt ggccttgggag gagctggcaat ctcacaaatcc ctttgcacaa aaccaacatc 10920  
 atgcctatcca ctatcgatgtt atccagctgc ggcacatgtt cccggggctg tttatccca 10980  
 agcctcatgc aacctaacaatg atggatcgat tggaaaggccat ataacagcaa ccacagactt 11040  
 aaaaccttgc gcctccatag acttaagcaa atgtgtgtac aatgtggatc cttaggcctt 11100  
 ccttgcgttgc ctatgtgaca cgttaacatgtt actctcaact gtccaaatcg aagcggttct 11160  
 agccttccag gcccggcgtt aagcaatacc agccacaaca ccctcaacat cagaacccaa 11220  
 ccaagggtat ctatcttgc acctctcttag atcatcaatc cactttgtt gttttgtgg 11280  
 ctctgtccata aagttactgt tagacgttcc aatgtatgg ttaacgatatac cacaaccgc 11340  
 ggcacatatac gtcgtgttag ctggccat ctcacactggt ctccctctccg gagacatgtc 11400  
 gactcttagag gatccccggg taccctgtcc tctccaaatq aatgaactt ctttatata 11460  
 aggaagggttc ttgcgtggat tagtggggat gtgcgttccat ctttacgtca gtggagat 11520  
 cacatcaactt cactgttccat tggaaacgtt ttggaaatc acgtatgtcc 11580  
 tcgtgggtgggggttccat tgggaccac tgcgtggcaga ggcacatctca acgtatggct 11640  
 ttccttatac gcaatgttggg cattttgttggg agccacatc ctttccactt atcttcaaa 11700  
 taaagtgtaca gatagctggg caatgtatc cgaggaggat tccggatattt accctttgtt 11760  
 gaaaagtctc aatttgcctt tggtcttctg agactgtatc tttgtatattt ttggagtaga 11820  
 caagcggttc gtgtccaccat atgttgcgtt agatattttt cttgttccatc agtgcgtt 11880  
 gactctgtat gaaatgttcc ccaatgttca cggcgatgtt tggatgttccat cttttgtt 11940  
 ctgttactccat atgggtttttt agatctctgc agttaaaac gggccacggcc tggccggcc 12000  
 tcgaggttacc ggatgtggat ccaatgttca taaacggccat tggaaagaa agtcttgcgt 12060  
 tgggtgtat gtaacagatg agttaaaac gagaagagag agatgtgttgcg atacatgtat 12120  
 tggccggccaa caaaaatccat gaaatgttca ttttagcaaa gagaagagat tggatgttcc 12180  
 tagcagaaga gtggggggaa atttaagctc tggacttgcgtt gatgttccatc gccttgc 12240  
 tacttcttca atccatatacatttccatc tttttttttt gttttgttgcgtt attatctggg 12300  
 gcccgggttat tccggccat cattttttt gttttgttgcgtt attatctggg ctttataacg 12360

caggcctgaa ataaattcaa ggcccaactg ttttttttt taagaagttg ctgttaaaaa 12420  
 aaaaaaaaaagg gaattaacaa caacaacaaa aaaagataaa gaaaataata acaattactt 12480  
 taattgtaga ctaaaaaaac atagattta tcatgaaaaa aagagaaaag aaataaaaac 12540  
 ttggatcaaa aaaaaaaaaac tacagatctt ctaattatta acttttctta aaaatttaggt 12600  
 ccttttccc aacaattagg tttagagtt tggaaataaaa cccaaaagat tggctaaaa 12660  
 aatactcaaa tttggtagat aagtttcattt atttaatta gtcaatggta gatactttt 12720  
 tttctttct ttatttagt agattagaat cttttatgcc aagttttgat aaattaaatc 12780  
 aagaagataa actatcataa tcaacatgaa attaaaagaa aaatctcata tatagtatta 12840  
 gtattctcta tatatattat gattgcttat tcttaatggg ttgggttaac caagacatag 12900  
 tcttaatggg aagaatctt ttgaacttt ttccttattt attaaattct tctatagaaa 12960  
 agaaaagaaat tatttgagga aaagtatata caaaaagaaa aatagaaaaa tgcgtgaa 13020  
 gcagatgtaa tggatgacct aatccacca ccaccatagg atgtttctac ttgagtccgt 13080  
 cttttaaaaa cgcacgggtt aaaatatgac acgtatcata tgattcttc ctttagttc 13140  
 gtgataataa tcctcaactg atatcttct tttttgtt tggctaaaga tattttattc 13200  
 tcattatag aaaaagacggt ttgggttgcga tataaagaag accttcgtgt 13260  
 ggaagataa aatttcattc ttgcgtttt totgactt caatctctcc caaagcctaa 13320  
 agcgatctct gcaaatctt cgcgactctc tttttcaagg tatatttct gattttttt 13380  
 gttttgatt cgatctgtat ctccaatttt ttttatgtgg attattgaat cttttgtata 13440  
 aatttgcattt gacaatattg ttgcgttgcg caatccagct tctaaatttt gtccgttata 13500  
 ctaagatatac gattcgttagt gtttacatct gtgtatattt ttgcgttattt gtgaaattag 13560  
 gattttcaag gacgatctat tcaattttt gttttttt gttcgattct ctctgtttt 13620  
 ggtttcttat gtttagatcc gtttctttt ggtgttggg ttgatttctt tacggctttt 13680  
 gattttgtat atgttcgtt atgggttctt acttgcata ttgttttattt tcaggtg 13737

<210> 11  
<211> 12949  
<212> DNA  
<213> Plasmid

<400> 11  
 agcttcgtat cctgcagtgc agcgtgaccc ggtcggtcccc ctctctagag ataatgagca 60  
 ttgcgtgtct aagtataaa aaatttaccac atattttttt tgcacactt gttgaagtg 120  
 cagtttatct atctttatc atatatttaa actttactct acgaaataata taatctatag 180  
 tactacaata atatcagtgt tttagagaat catataatg aacagttaga catggctaa 240  
 aggacaatttga agtattttga caacaggact ctacagttt atcttttag tgcgtatgt 300  
 ttctccctttt ttttgc当地 tagcttcacc tatataatac ttcatccatt ttatttagtac 360  
 atccatTTT taggttttgc当地 ttatgatctt ttttttagt acatctattt 420  
 tattttttt tagcctctaa attaaagaaa ctaaaactctt attttagttt ttttatttaa 480  
 taatttagat ataaaataga ataaaataaa gtgactaaaa attaaacaaa taccctttaa 540  
 gaaattaaaaa aaactaagga aacatttttgc当地 ttgtttcgag tagataatgc cagcctgtta 600  
 aacgcgcgtcg acgagtctaa cggacaccaa ccacgcacacc agcagcgtcg cgtcgggcca 660  
 agcgaagcag acggcacggc atctctgtcg ctgcctctgg acccctctcg agagttccgc 720  
 tccaccgtt gacttgc当地 gctgtcgca tccagaaattt gcgtggcgga gcggcagacg 780  
 tgagccggca cggcaggcgg cctccttc当地 ctctcacggc accggcagct acgggggatt 840  
 ccttccccc当地 cgtcccttc当地 ctcgc当地 gtaataaata gacacccccc 900  
 ccacaccctc ttccccc当地 ctcgtgttgc当地 tcggagcgca cacacacaca accagatctc 960  
 ccccaatcc acccgctcgcc acctccgttcc caaggtacgc cgctcgctt ccccccccccc 1020  
 ccctctctac ttctctctaga tcggcgttcc ggtccatggg tagggccgg tagttctact 1080  
 tctgttcatg ttgttgtttag atccgttgc当地 gtttagatc cgtgtgttgc当地 gcttcgttac 1140  
 acggatgc当地 cctgtacgtc agacacgttc tgatgttca cttgc当地 ctttcttttgc当地 1200  
 gggatctg ggtggcttcc agccgttccg cagacgggat cgttccatg attttttttgc当地 1260  
 tttcggttca tagggtttgg tttgc当地 tcccttattt caatataatgc cgtgc当地 1320  
 tttgtcggtt catcttttca tgctttttt tttgttgc当地 gtgatgtatg ggtctgggtt 1380  
 ggcggcgtt ctagatcgga gtagaatttgc当地 gttcaactt acctgggttgc当地 ttttatttgc当地 1440  
 ttggatctgt atgtgtgtc catacatattt catagttacg aattgaatgatg gatggatgg 1500  
 aataatcgatc taggataggtt atacatgttgc当地 atgc当地 ggttgc当地 tatacagaga 1560  
 tgctttttgtt cgttgc当地 gtgatgtatg ggtgttgc当地 ggcggcgtt cattcgttct 1620  
 agatcggagttt agaataacttgc当地 ttcaacttgc当地 ctgggttgc当地 tattatatttgc当地 ggaactgtat 1680  
 gtgtgtgtca tacatcttca tagttacgatg ttttgc当地 atggaaatat cgtatcttagga 1740  
 taggtatatac tttgtatgtt ggtttacttgc当地 atgc当地 atgtggcat atgc当地 1800  
 tatttcatatg ctctaaacttgc当地 ggttgc当地 ctattataat aaacaatgtt gtttataat 1860  
 tattttgtatc ttgtatatacttgc当地 ggttgc当地 agtataatgtt ggttgc当地 1920

agccctgcct tcatacgcta tttatttgcg tggtaactgtt tcttttgcg atgctcaccc 1980  
 tgggtttgg tggttacttgc gcaggatcc ccgatcatgc aaaaactcat taactcagtg 2040  
 caaaactatg cctggggcag caaaacggcg ttgactgaac tttatggtat ggaaaatccg 2100  
 tccagccagc cgatggccga gctgtggatg ggcgcacatc cgaaaagcag ttacgcgtg 2160  
 cagaatgccg ccggagatata cgtttactg cgtgatgtga ttgagagtga taaatcgact 2220  
 ctgctcgag aggccgttgc caaacgcgtt ggcaactgc ctttcgtt caaagtatta 2280  
 tgccagcac agccactctc cattcaggtt catccaaaca aacacaattc tggatcggt 2340  
 tttgccaag aaaatgccg aggtatccc aggtatccc aggtatccc ccgagcgtaa ctataaagat 2400  
 cctaaccaca agccggagct gggtttgcg ctgacgcctt tccttgcgt gaacgcgtt 2460  
 cgtgaatttt cgagattgt ctccctactc cagccggcga caggtgcaca tccggcgatt 2520  
 gtcactttt tacaacagcc tgatggcga cggttaagcg aactgttcgc cagctgttg 2580  
 aatatgcagg gtgaagaaaa atcccgccg ctggcgattt taaaatccgc cctcgatagc 2640  
 cagcagggtg aaccgtggca aacgatcg ttaatttctg aattttaccc ggaagacagc 2700  
 ggtctgttcc ccccgattt gctgaatgtg gtggaaatttgc accctggcga aegcatgttc 2760  
 ctgtcgctg aaacaccgcga cgcttacctg caaggcgtgg cgctggaaatgatggc 2820  
 tccgataacg tgctcggtc gggctcgacg cctaaatata ttgatattcc ggaactgggt 2880  
 gccaatgtga aattcgaagc caaacggct aaccaggatgt tgaccgcgc ggtgaaacaa 2940  
 ggtgcagaac tggacttccc gattccagtg gatgatttttgc ctttctcgct gcatgacatt 3000  
 agtgataaaag aaaccaccat tagccagcg agtgcgcgcga ttttgtctg cgtcgaaggc 3060  
 gatgcaacgt tggaaaagg ttctcagcg ttacagctt aaccgggtga atcagcgatt 3120  
 attggccca acgaatcacc ggtgactgtc aaaggccacg gccgttagc gcgtgtttac 3180  
 aacaagctgt aagagcttac tgaaaaattt aacatcttttgc gctaagctgg gagctcgatc 3240  
 cgtcgacccg cagatcgatc aaacatttgg caataaaagtt tcttaagattt gaaatctgtt 3300  
 gccggcttgcgatgattt catataattt ctgttgaattt acgttaagca tggtaataattt 3360  
 aacatgtaat gcatgacgtt atttatgaga tgggttttttgc tggtaatggat cccgcaattt 3420  
 tacatttatc acgcgtataga aaacaaaata tagcgcgcga actaggatata attatcgcc 3480  
 ggggtgtcat ctatgttact agatcgatc ggcctgcagg aaattttaccg gtggccggc 3540  
 ggcgcgcgt ggcgtatccg caatgttgc ttaagttgtc taagcgtaa tttgttaca 3600  
 ccacaatata ttctggccacc agccggccaa cagcttcccg accggcagct cggcacaaaa 3660  
 tcaccactcg atacaggccag cccatcgaa ttaattctca tggtaatggat cttatcatcg 3720  
 actgcacggc gaccaatgc ttctggcgtc aggcagccat cggaaatgtt ggtatggctg 3780  
 tgcaggtcgt aaatcactgc ataattcgatc tgcgtcaagg cgcaactcccg ttctggataa 3840  
 tgggttttgc ggcgcacatca taacggttctt ggcacatattt ctgaaatggat ctgttgcacaa 3900  
 ttaatcatcc ggctcgatca atgtgtggaa ttgtgagcggg ataacaattt cacacaggaa 3960  
 acagaccatg agggaaagcgt tgatcgccga agtacgtactt caactatcag aggtatgtgg 4020  
 cgtcatcgag ccgcatttcg aaccgacgtt gtcggccgtt catttgcgt gctccgcagt 4080  
 ggtggccgc ctgaagccac acagtatgtt tggatgtgc gttacgtgaa cgcgtaaaggct 4140  
 tggataaaaca acgcggccgat ctttgcgttca cgcacccat tggatgtgc gttacgtgaa 4200  
 agagagcgag atttccgcgt ctgtagaatgtt caccattgtt gtcgcacgcg acatcattcc 4260  
 gtggcggtat ccagctaaatc ggcgcactgcg atttggagaa tggcggccgcg atgacatttc 4320  
 tgcaggtatc ttgcagccag ccacgcgtc catttgcgttgc gtcgttgc tgacaaaagc 4380  
 aagagaacat agcgttgcgt tggatgtcc agcggccggat gaaacttgcg atccgggtcc 4440  
 tgaacaggat ctatgttgcgt ctgtaaatgc aaccttacgcg ctatgttgcg cggcccccga 4500  
 ctggcgatcc gatgagcggaa atgtatgttgc ttcgttgcgtt cgcatttgcg acagcgacgt 4560  
 aaccggccaa atcgccgcgcg aggtatgtcc tggcgcactgg gcaatggagc gcgtccgcgc 4620  
 ccagatcgatcc cccgtatccat ttgaagcttgc gcaaggcttgc tttggacaaag aagatcgatc 4680  
 ggcctcgccgc gcaatcgatcc tggaaatattt tggatgttgc gtcggccgcg agatcaccat 4740  
 agtagtcggc aaataaaagct ctatgttgcgt ttcgttgcgtt cggggatctt ggtatggccgc 4800  
 ggacgcacga cgcggccgcg agaccatagg cgcacccat tggatgttgc gtcggccgcg 4860  
 tgcagcgatcc tcaatgttgc ttcgttgcgtt tggatgttgc gtcggccgcg 4920  
 ttcgcatttt tggatgttgc gtcggccgcg aatgttgcgtt gtcggccgcg 4980  
 atgattgtac atccttcacgc tggaaatattt tcaagcgatgc tggatgttgc gtcggccgcg 5040  
 agatgttgcgt tggatgttgc gtcggccgcg 5100  
 catcttattt tggatgttgc ttcgttgcgtt tggatgttgc gtcggccgcg 5160  
 acccgatccca caagatgttgc ttcgttgcgtt tggatgttgc gtcggccgcg 5220  
 ttagatgttgc tggatgttgc gtcggccgcg 5280  
 atcataattt tcaatgttgc ttcgttgcgtt tggatgttgc gtcggccgcg 5340  
 ggagcaatgttgc ttcgttgcgtt tggatgttgc gtcggccgcg 5400  
 gttgccttgc gtcggccgcg 5460  
 actgacttgcg cacttacgc ttcgttgcgtt tggatgttgc gtcggccgcg 5520  
 aaacttacgg cagggtgatcc ttcgttgcgtt tggatgttgc gtcggccgcg 5580  
 ctatcgccgcg agcaacttgc ttcgttgcgtt tggatgttgc gtcggccgcg 5640

agtatacgtt ttcttcatttt gaggcgtgcgc cggaaacttg aggcagatcc gtcaagccct 5700  
caactgataa aaacagcaag aggtgccggt tatttcttt acgcggacgt gcaggttcg 5760  
cacggggga cgatggcgcg ctgagccaat tcccagatcc ccgaggaatc ggcgtgagcg 5820  
gtcgcaacc atccggcccg gtacaatcg ggcggcgct ggggtatgac ctggtgaga 5880  
agttaaggc cgccgaggcc gcccagcggc aacgcacatcg ggcagaagca cggcccggtg 5940  
aatcgtggca agcggccgct gatcaatcc gcaaagaatc cccgcaaccg cccgcagccg 6000  
gtgcggcgtc gatttaggaag ccggccaaagg ggcgagacg accagattt ttcgttccga 6060  
tgctctatga cgtggcacc cgcgatagtc gcagcatcat gacgttgcc gttttccgtc 6120  
tgctgaaggc tgaccgacg gctggcgagg tgatccgtc cgagcttcca gacgggacacg 6180  
tagaggtttc cgccggccg gccggcatgg ccagtggtg ggattacgac ctggtaactga 6240  
tggcggttc ccatctaacc gaatccatga accgataccg ggaagggaag ggagacaagc 6300  
ccggcccggt gttccgtcca cacgttgcgg acgtactcaa gttctgcgg cgagccatg 6360  
gccccaaagca gaaagacgac ctggtagaaa cctgcattcg gttaaacacc acgcacgtt 6420  
ccatgcagcg tacgaagaag gccaagaacg gccgccttgt gacggtatcc gagggtgaag 6480  
ccttgattag ccgtacaag atcgtaaaa gcgaaaccgg gccggccggag tacatcgaga 6540  
tcgagctacg tgattggatg taccgcgaga tcacagaagg caagaaccgg gacgtgtga 6600  
cggttacccc cgattacttt ttgatcgatc cggcatcg ccgtttctc taccgcctgg 6660  
cacggccgccc cgcaggcaag gcagaagcca gatgggtgtt caagacgatc tacgaacgc 6720  
gtggcagcgc cggagagttc aagaagttt gtttccacgt ggcgaacgtg atcgggtcaa 6780  
atgaccgtcc ggagtacgt ttgaaggagg aggccggca gctggcccg atccctagt acggacaga 6840  
tgcgttaccc caacctgatc gaggcgaaag catccggcg ttcttaatgt acggacaga 6900  
tgcttagggc aatttccctt gaggggaaaa aaggtcgaaa aggtcttctt cctgtgata 6960  
gcacgttacat tggaaaccca aagccgtaca ttggaaaccg gaacccgtac attggaaacc 7020  
caaagccgta cattggAAC ccgtcacaca tgtaagtgac tgatataaaa gaaaaaaag 7080  
gcatgttttcc cgcctaaaac tctttaaaac ttattaaaac tctttaaaacc cgcctggcct 7140  
gtgcataact gtctggccag cgcacagccg aagagctgca aaaagcgcct acccttcgg 7200  
cgctgcgtcc cttacggcccc gccgcttcgc gtccgcctat cgccggccgt ggcgcetcaa 7260  
aaatggctgg cttacggcca ggcaatctac cagggcgccg acaagccgcg cgtcgccac 7320  
tcgaccggcc ggcgtgaggct ctcgtccgtg aagaagggtg tgctgactca taccaggcct 7380  
gaatcgcccc atcatccagc cagaaagtga gggagccacg gttatgaga gctttgtgt 7440  
aggtggacca gttgtgtatt ttgaacttt gcttgcac ggaacggctc gcttgcgg 7500  
gaagatcgct gatctgtatcc ttcaactcag caaaagttcg atttattcaa caaagccgccc 7560  
gtcccgtaa gtcacgtaa tgctgtccca gtgttacaac caattaaacc attctgatta 7620  
gaaaaactac tcgacatca aatgaaaactc caattttatc atatcaggat tatcaatacc 7680  
atattttga aaaacggctt tctgtataga aggaaaaaac tcaccgaggc agttccatag 7740  
gatggcaaga tcctgttatt ggtctgcgt tccgactcgt ccaacatcaa tacaacctat 7800  
taatttcccc tcgtaaaaaa taaggttatc aagtggaaaa tcaccatgag tgacgactga 7860  
atccggtgag aatggcaaaa gctctgcatt aatgaatcgg ccaacgcgcg gggagaggcg 7920  
gtttgcgtat tggcgctct tccgcttcgt cgctactga ctgcgtgcgc tcggcgttcc 7980  
ggctgcggcg agcggtatca gtcactcaa aggccgtat acggttatcc acagaatcag 8040  
gggataacgc agggaaaacat atgtgagcaa aaggccagca aaaggccagg aaccgtaaaa 8100  
aggccgcgtt gctggcgctt ttccataggc tccggcccccc tgacgagcat cacaatc 8160  
gacgctcaag tcagagggtgg cggaaaccgg caggactata aagataccgg gcttccccc 8220  
ctggaaagtc cctctgtgcgc tctctgttc cgaccctgcg gcttaccggg tacctgtccg 8280  
cctttccccc ttggaaaggc gtggcgctt ctcatacgct acgctgttagg tattctagt 8340  
cggttagatg cgttcgtcc aagctgggt gtgtcaca gccccccgtt cagccgacc 8400  
gctgcgcctt atccggtaac ttcgtcttgc agtccaaacc ggttaagacac gacttatcgc 8460  
caactggcagc agccacttgc aacaggattt gcagagcgag gtatgttagg ggtgtacag 8520  
agttcttggaa gtggggcct aactacggct acactagaag aacagtattt ggtatctcg 8580  
ctctgtgaa gccagttacc ttccggaaaaa gagttggtag ctttgtatcc ggcacaaacaa 8640  
ccaccgctgg tagcggtgg tttttgttt gcaagcagca gattacgcgc agaaaaaaag 8700  
gatctcaaga agatcttttgc atctttcttca cggggctgtc cgctcagtgg aacgaaaact 8760  
cacgttaagg gattttggc atgagattat caaaaaggat cttcacctag atcctttga 8820  
tccggaatta attccgtgg ttggcatgca catacaatg gacgaacggg taaacctttt 8880  
cacggccctt taaatatccg attatctaa taaacgcctt ttctctttag gtttaccggc 8940  
caatataatcc tgcacaaacac tgatgttta aactgaaggc gggaaacgcg aatctgtatca 9000  
tgagcgaga attaaggggag tcacgttgcgatccggc atgacggggg acaagcgtt 9060  
ttacgttgg aactgacaga accgcaacgc tgccggat gggccgcacg gccattaaaa 9120  
tggtacccca attaactgatc gaagcttgcg tgcacgggtt ctagagcgcc cgcctcgagg 9180  
taccggggccccc cccctcgagg tcgacgggtat cgataagtt gcatgcctgc agtgcacgtt 9240  
gaccgggtcg tgccctctc tagagataat gaggatttgc gtcgtcaatgtt tatacatata 9300  
accacatatt tttttgtca cacttgcggaa aqgtcgcgtt tatctatctt tatacatata 9360

tttaaacttt actctacgaa taatataatc tatagtacta caataatatc agtgttttag 9420  
 agaatcatat aaatgaacag ttagacatgg tctaaaggac aattgagttat tttgacaaca 9480  
 ggactctaca gtttatctt ttagtgtgc atgtgttctc cttttttt gcaaatacg 9540  
 tcacctatat aatacttcat ccattttatt agtacatcca ttaggggtt agggttaatg 9600  
 gttttatacg actaattttt ttagtacatc tattttattc tattttagcc tctaaattaa 9660  
 gaaaactaaa actctatccc agttttttt ttaataatt tagatataaa atagaataaa 9720  
 ataaaagtgac taaaaattaa acaaataccc ttaagaaaat taaaaaaact aaggaaacat 9780  
 ttttctgtt tcgagtagat aatgcacggc tggtaaacgc cgtcgacgag tctaaccggc 9840  
 accaaccagc gaaccagcag cgtcgcgtcg gcccaagcga agcagacggc acggcatctc 9900  
 tgtcgctgcc tctggacccc tctcgagatg tccgctccac cggtggactt gctccgctgt 9960  
 cggcatccag aaattgcgtg gggagcggc agacgtgagc cggcacggca ggcggcctcc 10020  
 tcctctctc acggcacggc agtacacggg gatccttcc ccaccgtcc ttgcgtttcc 10080  
 ctctctcgcc cgccgtata aatagacac ccctccacac cctcttcccc caacctcggt 10140  
 ttgtcgagatg cgcacacaca cacaacaga tctcccccata atccacccgt cggcacctcc 10200  
 gttcaaggt acggcgtcg tcctcccccc ccccccctt ctacctctc tagatcgccg 10260  
 ttccggtcca tggtagggc cggtagttc tacttctgtt catgtttgtt ttagatccgt 10320  
 gtttggtta gatccgtgt gtagcggtc gtacacggat ggcacctgtt cgtcagacac 10380  
 gttctgattt ctaacttgcg agtgtttctc ttggggat cctggatgg ctctagccgt 10440  
 tcccgacacg ggatcgattt catgatttt ttgtttcg tgcataagggt ttgggttgcc 10500  
 cttttcctt atttcaatat atgcccgtca ctgtttgtc gggtcatctt ttcatgtctt 10560  
 ttttgcgtt gttgtgtatg atgtggtctg gtggggcggt cgttctagat cggagtagaa 10620  
 ttctgtttca aactacctgg tggatttatt aattttggat ctgtatgtt gtgccatata 10680  
 tattcatagt tacgaattga agatgatgaa tgaaatatc gatctaggat aggtatacat 10740  
 gttgtatcggtt gtttactga tgcataataca gagatgtctt ttgttcgtt ggtgtgtatg 10800  
 atgtgtgtg gttggcggt cgttcattcg ttctagatcg gagtagaaata ctgtttcaaa 10860  
 ctacatgtt gttttatcaa ttttggaaat gtatgtgtt gtcatacata ttcatgtta 10920  
 cgaggatggaa atggatggaa atatcgatct agatagtgatc tacatgtt gttgggtttt 10980  
 actgtatgcgat atacatgtatg gcatatgcg catcttatac tatgtcttaa ccttgagttac 11040  
 ctatcttata taataaaacaa gtatgttttta taattttttt gatcttgata tacttggatg 11100  
 atggcatatg cagcagctat atgtggattt ttttagccct gcctcatac gctattttt 11160  
 tgcttggatc tgtttctttt gtcgtatgtc accctgtt gttgggttac ttctgcagg 11220  
 cgactctaga ggatccagaa ttgcgtatca aatggccgca acaagcagca caagcagcc 11280  
 gtctttgac atagagctcg acatcatcg ccagcaaccg cctcttctt caatctacac 11340  
 ccagatcgtt ctcgttacc cctgtctgtc tccctcccg tatcccacca tcgtcagcac 11400  
 ccttgaggaa ggcctaaacaa gcctctctca aaccttccca tgggtcgccg gccaggtcaa 11460  
 gaccgaggc atcagcgaag gaaacacagg aacttccaaatc atcattccat atgaggagac 11520  
 accccgtctt gtgggtgaaag acctccgtca tgattcctca ggcacaacga tcgagggtt 11580  
 gagaaaggcg gttttccct tagagatgtt tgacgagaac gtcgtcgctc cgaggaagac 11640  
 attagctatc ggacccgtggca atggccccaat cggccggaaat cctgtgttgc tattgcagct 11700  
 caacttcatc aaggccggac ttcatcttccat cgtcaacggaa acacatgtt ctatggacat 11760  
 gacaggacaa gatgcattttt ttgcgttttctt ctccaaaggcg tgccgcaacg aatcattcac 11820  
 cgaggaggaa atctcgccaa tgaacctcgatc tgcaagacg gtagtccctc tccttggaaa 11880  
 ctacaaaagtt ggtcttgatc tagaccacca gatcgccaaat cctgcgcctg ctggcgacgc 11940  
 tccacccgca cccggccaaatgca aacatggc gttttttca ttcaactccca agggcccttc 12000  
 ggagctgaaa gacgcggccaaatgca aacatggc gttttttca ttcaactccca agggcccttc 12060  
 tgatgtctt tggcgatccat tctggcaatc aacctcgccgc gtacgtctcg caagattgg 12120  
 tgcttccaca cctactgaat tctggccgc tgcgtatcg cggggccaaatgca tggcgatcc 12180  
 aagcacatac ccaggcccttc ttcaaaaatc gacctaccat gactcgaccg tcggccaaat 12240  
 cgccaaacgaa ccacttggcgca aacacggatc acggccgtcg tcggaaactca acagtgtatcg 12300  
 tttgcgcaga cgaacacaatgca ctttggcgac gtacatgtc ggcctgcctg acaagtgcg 12360  
 cgtctccctg accggccgtatc cgaatccgtca aacacggatc atgtgtatcg cctggggccaa 12420  
 ggtggatgtc tggggatgtc accttgggtt tgacttgggt aacgcttgc gttgtgagaag 12480  
 acctcgctt gaaatggatgtc gtactttatg cccaaaggc ctgtatgggaa 12540  
 gtttacggcg tccatttctc tgaggatgtc ggtatggatc agatggaaatgca cggatgg 12600  
 gtggacaaatgca tggatggatgtc ggtatggatc tagactactg cggatgtatcg 12660  
 tggatcccaatgca tggatggatgtc ggtatggatc tagactactg cggatgtatcg 12720  
 tcctgttgcc ggtcttgcgtca tgattatcat ataatttctg ttgaatttacg ttaagatgt 12780  
 aataattaac atgtatgtca tgacgttatt tatgagatgg gttttatgtt ttagatcc 12840  
 gcaattatac attaatacg cgtatggaaa caaaatatacg cgcgcacact aggataaatt 12900  
 atcgcgcgcg gtgtcatctc tggtactaga tcgggaattc ggcgcgc 12949